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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,530	07/11/2005	Hubert Baumgart	PAT-00344	4046
77224	7590	03/25/2009	EXAMINER	
Mary E. Golota			FRANK, NOAH S	
Cantor Colburn LLP				
201 W. Big Beaver Road			ART UNIT	
Suite 1101			PAPER NUMBER	
Troy, MI 48084			1796	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/541,530

Applicant(s)

BAUMGART ET AL.

Examiner

NOAH FRANK

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 17-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11, 12 and 17-28 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 11-12, 17-18, 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nienhaus et al. (WO 02/31071 using US 6,903,145 as the English translation) in view of Ohrborn et al. (EP 0 915 113).

Considering Claims 1-8, 11-12: Nienhaus et al. teaches a multicomponent system comprising (A) at least one component comprising at least two isocyanate-reactive functional groups, (B) one component containing a polyisocyanate, and (C) a component comprising at least two constituents which are curable with actinic radiation (Abs). Preferred compounds (A) are (meth)acrylate copolymers containing hydroxyl groups (4:10-15) and a preferred compound (C) is dipentaerythritol pentaacrylate (8:25-35, Table 1). Additionally, the composition may further comprise amino resin crosslinking agents such as those taught in "Carbamylnmethylated Melamines" (5:20-35). The amino resin crosslinking agents are the same referenced in the instant application and are therefore assumed to meet all of the claimed limitations. The system can be used as a clearcoat (13:45-50).

Nienhaus does not teach a component comprising at least two allophanate or

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carbamate groups. However, Ohrbom et al. teaches a dual-cure system comprising a compound having hydroxyl functionality and carbamate functionality, or a compound having carbamate functionality and a compound having hydroxyl functionality, and an aminoplast crosslinker (2:50-60). Preferred compounds having carbamate functionality are acrylic resins having at least two carbamate groups per molecule (7:35-45). Neinhaus and Blum are combinable because they are from the same field of endeavor, namely polyisocyanate/polyurethane dual cure coating systems. At the time of the invention a person of ordinary skill in the art would have found it obvious to have used compounds having carbamate functionality, as taught by Ohrbom, in the invention of Neinhaus, in order to provide rheology control and environmental etch resistance in systems curing also through crosslinking of hydroxyl groups with polyisocyanate crosslinkers (2:5-10 of Ohrbom).

Neinhaus does not teach the claimed NCO:OH or carbamate:methylol ratios. However, Ohrbom teaches that an NCO:OH ratio of about 0.7:1 and a carbamate:methylol ratio of about 1:0.6 (3:36-45). At the time of the invention a person of ordinary skill in the art would have found it obvious to have used the ratios, as taught by Ohrbom, in the invention of Neinhaus, in order to effectively crosslink the composition.

Considering Claim 9: Neinhaus does not teach component B comprising a minor amount of allophanate or carbamate groups. However, Ohrbom teaches incorporating carbamate functionality via hydroxyethyl carbamates (¶0033). At the time of the invention a person of ordinary skill in the art would have found it obvious to have used a

hydroxyethyl carbamate, as taught by Ohrbom, in the invention of Neinhaus, as part of component B, in order to incorporate extra carbamate functionality in the system.

Considering Claim 17: Neinhaus teaches using blocked polyisocyanates (5:40).

Considering Claim 18: Neinhaus teaches using isocyanates having at least one group which can be activated with actinic radiation (8:45-65).

Considering Claim 20: Neinhaus teaches the isocyanate component comprising from 20 to 80% by weight of isocyanate (7:30-40).

Considering Claim 21: Neinhaus teaches using additives (4:40-45).

Considering Claim 22: Neinhaus teaches the mixture curable thermally and with actinic radiation (2:55-60).

Considering Claim 23: Neinhaus teaches mixing and homogenizing the components (3:10-15).

Considering Claims 25-26: Neinhaus teaches using the coating materials for automotive refinishing (11:1-5).

Claims 19, 24, and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nienhaus et al. (WO 02/31071 using US 6,903,145 as the English translation) in view of Ohrbom et al. (EP 0 915 113), as applied to claims 1-9, 11-12, 17-18, 20-23 above, and further in view of Blum et al. (WO 02/02704 using US 6,803,393 as the English translation).

Considering Claims 19 and 27-28: Neinhaus et al. teaches the basic claimed composition as set forth above. In addition, Neinhaus teaches the polyisocyanate

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containing component comprising from 20 to 80% by weight of polyisocyanate (7:35-40).

Neinhaus does not teach the other claimed weight percentages. However, Blum et al, teaches multicomponent systems comprising (A3) 1 to 50% by weight isocyanate reactive polymers having actinic groups (9:1-17), (A2) 1 to 50% by weight isocyanate reactive polymer/oligomers (9:1-17), (A1) 1 to 60% by weight actinic group containing compound (5:59-64), and 1 to 50% by weight of amino resin and isocyanate crosslinking agents (14:12-17). Neinhaus and Blum are combinable because they are from the same field of endeavor, namely multicomponent dual-cure systems. At the time of the invention a person of ordinary skill in the art would have found it obvious to have used the weight percentages, as taught by Blum, in the invention of Neinhaus, in order to effectively crosslink the composition.

Considering Claim 24: Neinhaus et al. teaches the basic claimed composition as set forth above.

Neinhaus does not teach the claimed weight ratio. However, Blum et al, teaches using 1 to 50% by weight of crosslinking agents (14:16-28). At the time of the invention a person of ordinary skill in the art would have found it obvious to have used the weight ratio, as taught by Blum, in the invention of Neinhaus, in order to effectively crosslink the composition.

Allowable Subject Matter

Claim 10 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Neinhaus does not teach the isocyanate-reactive component comprising allophanate groups. Additionally, the skilled artisan would not have found it obvious to incorporate allophanate groups into a component that is preferably a hydroxyl containing (meth)acrylate.

Response to Arguments

Applicant's arguments filed 12/31/08 have been fully considered but they are not persuasive.

In response to application's allegations of unexpected results, evidence, commensurate in scope with the claimed invention, would have to be shown.

In response to applicant's arguments that Neinhaus teaches a three-component system, while there are three components, the system is either (A/C) and (B) or (A) and (B/C), which is a two component system (Abs).

In response to applicant's arguments that Nienhaus teaches the amino resin for a different purpose, the amino resins will react with both carbamates and hydroxyl groups. Ohrbom uses amino resins to react with carbamates, whereas Nienhaus teaches using amino resins to react with hydroxyl groups. It flows naturally from the combination that the amino resin will react with both functionalities. Furthermore, Ohrbom teaches that

the amount of amino resin is such that the resin reacts first with available carbamate groups before any substantial reaction with hydroxyl groups (§0008). The skilled artisan would know to include amino resins when incorporating the carbamate functional component of Ohrbom, into the invention of Nienhaus, in order to maintain the crosslinking method of Ohrbom.

In response to applicant's arguments that there is no motivation to incorporate a third method of cure into the invention of Nienhaus, the skilled artisan would have a reasonable expectation of success to incorporate a third cure system, as there are no inherent incompatibilities between the systems. Nienhaus teaches a system curing via radiation and OH/NCO reaction and Ohrbom teaches a system that cures via OH/NCO reaction and carbamate/amino reaction. If both of the systems are compatible with a polyurethane type cure, then they should be compatible with each other. Additionally, Ohrbom teaches that the carbamate/amino cure system provides rheology control and environmental etch resistance in systems curing also through crosslinking of hydroxyl groups with polyisocyanate crosslinkers (2:5-10 of Ohrbom).

In response to applicant's arguments that Ohrbom is drawn to blocked polyisocyanate systems, while this may be true, both Ohrbom and Nienhaus are drawn to thermal cure systems, specifically those curing via a hydroxyl/isocyanate reaction. The fact that curing agents may be blocked has no effect on the cure mechanism, only its initiation. The benefit of Ohrbom is to "resolve the problem of excessive flow during initial stages of thermal curing" (§0008). It is not necessary to incorporate the blocked polyisocyanates of Ohrbom into Nienhaus as well.

In response to applicant's arguments that the effects of the combination would be unpredictable, Ohrbom teaches that the amount of amino resin is such that the resin reacts first with available carbamate groups before any substantial reaction with hydroxyl groups (¶0008). As for the third cure mechanism of Nienhaus, acrylate groups would not react with the amino resin.

In response to applicant's arguments titled "Response to Arguments", they have been substantially responded to above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NOAH FRANK whose telephone number is (571)270-3667. The examiner can normally be reached on M-F 9-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

NF
3-4-09